

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the matter of:	}	
	}	
Interference Immunity Performance	}	ET Docket No. 03-65
Specifications for Radio Receivers	}	
	}	
Review of the Commission's Rules	}	MM Docket No. 00-39
and Policies Affecting the Conversion	}	
to Digital Television	}	

TO: The Commission

**COMMENTS OF  
PAPPAS TELECASTING COMPANIES**

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## **SUMMARY**

Television broadcasters, cable and satellite providers, and consumer electronics manufacturers all stand at a critical juncture in the history of television's transition to a digital world. And, America's consumers are relying on all parties to deliver a real workable system from the studio to their home. Concerning reception issues, the Commission has already taken two important steps in ensuring a strong future for digital television so that it truly serves the public interest, convenience and necessity. It is, after all, the consumers' interests which should be paramount.

First, the Commission has established a schedule for the roll-out of television equipment capable of receiving digital programming, with the first of these television sets due next year. Second, the Commission has acknowledged the efforts of the cable industry and the consumer electronics manufacturers by releasing their Plug and Play Memorandum of Understanding (the "MOU") for public comment. Once the Commission has reviewed these comments, it will adopt the necessary rules to implement the terms of the MOU.

The last vital step in this progress to a fully-digital world of television is the adoption of standards for the over-the-air reception of digital television signals. Currently, there are negotiations being undertaken among the broadcasters and consumer electronics manufacturers working under the auspices of the ATSC to develop standards for digital television receivers. In light of the Commission's long-standing belief in regulatory parity, the Commission should follow the same process with respect to the ATSC recommended standards as was done with the Plug and Play Memorandum of Understanding.

Those who will receive digital programming over-the-air, numbering more than 80 million Americans, are entitled to the same quality of signal that will be provided to cable television viewers, and the Commission must ensure that no consumer is left behind or disadvantaged during or after the transition.

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Pappas Telecasting Companies ("Pappas"), by and through its attorneys, submits the following comments in response to the *Notice of Inquiry* released on March 24, 2003, in which the Commission seeks public comment on the potential benefits of incorporating receiver interference immunity performance specifications to the efficient utilization of the digital television spectrum.<sup>1</sup>

Pappas, founded in 1971 and headquartered in Visalia, California, is one of the largest privately-held owners of commercial broadcast television stations in the United States. Through its affiliated entities, Pappas currently is the licensee or permittee of 16 full-power television stations, operates four additional full-power

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<sup>1</sup> *Interference Immunity Performance Specifications for Radio Receivers, Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, Notice of Inquiry*, 18 FCC Rcd 6039 (2003)(the "Notice").

stations pursuant to local marketing agreements, and is the provider of free over-the-air local television programming in 15 markets in 10 states across the country.<sup>2</sup>

Pappas notes that there are some 80 million television sets in use today in the United States that receive television programming over-the-air, and tens of millions of households receive their television programming exclusively via over-the-air reception. Based on its strong interest in ensuring that these tens of millions of viewers continue to receive an “adequate” over-the-air signal, in accordance with the Commission’s mandate in the DTV Tuner Order,<sup>3</sup> during and after the transition to digital television, Pappas strongly encourages the Commission to give substantive effect to the Commission’s mandate by ensuring that the minimum performance standards currently being developed by consensus among representatives of the affected industries are incorporated into the

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<sup>2</sup> Pappas operates the following full-power stations in the following markets: WSWs-TV, Opelika, Alabama (Columbus, Georgia Designated Market Area or “DMA”); KPWB-TV, Ames, Iowa (Des Moines, Iowa DMA); KMPH-TV, Visalia, California, and KFRE-TV, Sanger, California (Fresno, California DMA) WTWB-TV, Lexington, North Carolina (Greensboro-Winston-Salem-High Point, North Carolina DMA); KAZH(TV), Baytown, Texas (Houston, Texas DMA); KTVG-TV, Grand Island, Nebraska, KHGI-TV, Kearney, Nebraska, KSNB-TV, Superior, Nebraska, and KWNB-TV, Hayes Center, Nebraska (Lincoln-Hastings-Kearney, Nebraska DMA); KAZA-TV, Avalon, California (Los Angeles, California DMA); WMMF-TV, Fond du Lac, Wisconsin (Green Bay, Wisconsin DMA); KPTM-TV and KXVO-TV, Omaha, Nebraska (Omaha, Nebraska DMA); KREN-TV, Reno, Nevada (Reno, Nevada DMA); KTNC-TV, Concord, California, (San Francisco, San Jose and Sacramento-Modesto, California DMAs); KFWU-TV, Fort Bragg, California (San Francisco, California DMA), KPTH-TV, Sioux City, Iowa (Sioux City, Iowa DMA); KSWT-TV, Yuma, Arizona (Yuma, Arizona/El Centro, California DMA) KAZW-TV, Walla Walla, Washington (Yakima-Pasco-Richland-Kennewick, Washington DMA).

In addition, Pappas owns and/or operates several low power television stations, some of which are also network affiliates.

<sup>3</sup> *Review of the Commission’s Rules and Policies Affecting the Conversion to Digital Television*, Second Report and Order and Second Memorandum Opinion and Order, 17 FCC Rcd 15,978 (2002) (the “DTV Tuner Order”). See also *Separate Statement of Chairman Powell*, DTV Tuner Order (citing that there are 81 million televisions sets, and tens of millions of consumers not receiving service from any multichannel video programming service.).

Commission's rules governing digital television receivers alongside the contemplated technical rules relating to cable interoperability.

Pappas believes that the effort currently being undertaken by representatives of the broadcast and consumer electronics industries under the auspices of the Advanced Television Systems Committee ("ATSC") is an important first step toward satisfying the Commission's DTV tuner mandate relating to over-the-air reception. Pappas believes, however, that the Commission must continue to encourage and actively monitor ATSC's progress given the timetable for deployment of over-the-air-ready television sets mandated by the Commission. Assuming that ATSC concludes its work in a timely fashion and adopts, by consensus, meaningful "Recommended Practices" (the "Recommended Practices") that do in fact ensure adequate over-the-air reception, Pappas believes that the Recommended Practices should be submitted to the Commission for review and public comment, and should then be adopted and incorporated in the Commission's rules.

In this regard, Pappas notes that the Memorandum of Understanding on cable interoperability currently before the Commission provides clear precedent for this approach.<sup>4</sup> The efforts of the cable and consumer electronics industries reflected in the Memorandum of Understanding currently before the Commission have been submitted for public comment and with the clear understanding of the industry parties that they are intended to become part of the Commission's rules. Despite the initial reluctance of the industries involved, representatives of the cable and consumer electronics industries came together and agreed by consensus on a

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<sup>4</sup> See *Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, and Compatibility Between Cable Systems and Consumer Electronics Equipment*, Further Notice of Proposed Rulemaking, 18 FCC Rcd 518 (2003) (the "Plug and Play MOU").

set of technical parameters for cable interoperability. They did this because Congress and the Commission strongly encouraged and perhaps prodded these industries to reach an agreement on such standards in recognition of the critical importance of cable interoperability to consumer adoption of digital television. Pappas believes that ensuring a smooth and effective transition for the tens of millions of over-the-air viewers is certainly no less crucial to a speedy transition to digital, and that the Commission should adopt the same approach in the interests of facilitating consumer adoption of digital television by over-the-air viewers.

Pappas notes that regulatory parity is one of the central tenets of the Commission's philosophy.<sup>5</sup> Thus, although the Commission has been historically reluctant to adopt or mandate technical standards for fear of stifling innovation and for other legitimate reasons, the Commission has nonetheless recognized the speedy and effective transition to digital has required a significant degree of governmental intervention in order to advance the public interest and other compelling governmental interests. As previously acknowledged, the Commission has recognized that the digital transition would stall absent an agreement on technical standards for cable interoperability that is universally adopted, and the Commission encouraged and pressed the cable and consumer electronics industries to come together and agree on a set of technical parameters that are to become mandatory by adoption in the Commission's rules.

The Commission has also mandated the phased-in deployment of over-the-air-ready tuners beginning twelve months from now in recognition of the need to

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<sup>5</sup> *Telecommunications Services Inside Wiring*, First Order on Reconsideration and Second Report and Order, 18 FCC Rcd 1342, ¶80 (2003).



leave no consumer behind.<sup>6</sup> Pappas maintains that the same elements and degree of regulatory oversight already deemed appropriate both by the affected industries and the Commission as relates to cable interoperability should apply to the over-the-air component of DTV tuners. To do otherwise would, by implication, reflect a conclusion that cable interoperability is of greater public interest than over-the-air reception – an implication clearly at odds with the Commission’s ruling in the DTV Tuner Order. In adopting the over-the-air tuner requirement, the Commission noted that “consumers generally still expect the television they purchase to be able to receive over-the-air broadcast signals” and described the tuner requirement as an appropriate “mechanism for continuing to meet those expectations as broadcasting transitions from analog to digital.”<sup>7</sup>

As the Commission is well aware, the Plug and Play MOU presently before it envisions a labeling regime so that consumers will know whether a digital television set they are purchasing can be “plugged in” to the cable system without additional equipment. Similarly, over-the-air consumers should be afforded the same degree of certainty in purchasing their sets, and the security of knowing that they can continue to get the same quality picture they have always enjoyed. For these reasons, Pappas supports the adoption of strict labeling requirements for both cable-ready and over-the-air-ready digital television sets so to encourage the adoption of industry standards and to assist in the elimination of consumer confusion.

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<sup>6</sup> *DTV Tuner Order*, ¶ 40.

<sup>7</sup> *Id.*, ¶ 44.

Lastly, Pappas maintains that the adoption of ATSC's Recommended Practices will facilitate greater spectrum efficiency in the broadcast spectrum. Unless DTV receivers meet certain minimum standards for selectivity, sensitivity, dynamic range, and multipath interference adequate and sufficient to protect against stray signals that might be emitted, for instance, if the Commission were to eventually authorize the operation of unlicensed devices, the Commission cannot realistically even consider authorizing spectrum sharing in the broadcast bands. To do so would be to unleash the potential for enormous interference in the broadcast spectrum.

## **I. BACKGROUND**

Television broadcasters, cable and satellite providers and consumer electronics manufacturers all stand at a critical juncture in the history of television, perhaps America's most beloved pastime, and the place where most Americans get their local news. The transition to digital television by broadcast licensees, and the concomitant development of digital transmission and reception equipment, have led to the Commission's acknowledgment that spectrum can be used in a significantly more efficient manner. The Commission has taken a lead role in the examination of spectrum efficiency by establishing the Spectrum Task Force, whose first Report called for a "soup to nuts" review of how the spectrum is used, and pledged to explore all possible methods to maximize the spectrum's full potential.<sup>8</sup>

One critical aspect of this forward-thinking approach has been the adoption of certain standards for digital television sets. The Task Force Report specifically

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<sup>8</sup> *Spectrum Policy Task Force Report*, ET Docket 02-135 (rel. Nov. 15, 2002) (the "Task Force Report").

noted the potential for maximizing the use of the digital television spectrum by ensuring that the transmission *and reception* devices associated with the digital television signal take full advantage of the associated significant benefits arising from the use of the digital signal.<sup>9</sup>

The Commission has taken two significant steps towards meeting the Task Force's mandate. First, the Commission adopted a specific schedule for mandating the roll-out of television sets with digital tuners.<sup>10</sup> By June 1, 2004, half of the large receivers (36" or greater) must contain a DTV tuner, and by June 1, 2007, all television sets 13" or greater imported and sold in the United States must contain a DTV tuner.

As indicated previously, the Commission's leadership in encouraging the adoption of the Plug and Play MOU between the major cable operators and consumer electronics manufacturers to implement a standard to permit cable subscribers to take full advantage of the digital services provided by broadcasters was essential to bringing that agreement about.

The next and final step in the process must be the development on a consensual basis and subsequent adoption of digital television over-the-air receiver performance standards that satisfy the requirements already established by the Commission in the DTV Tuner Order. Given the roughly 80 million television sets

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<sup>9</sup> *Task Force Report*, pg. 33.

<sup>10</sup> Specifically, the DTV Tuner Order established the following schedule for the importation and sale of new television sets: Receivers with screen sizes 36" and above -- 50% of a responsible party's units must include DTV tuners effective July 1, 2004; 100% of such units must include DTV tuners effective July 1, 2005; Receivers with screen sizes 25" to 35" -- 50% of a responsible party's units must include DTV tuners effective July 1, 2005; 100% of such units must include DTV tuners effective July 1, 2006; Receivers with screen sizes 13" to 24" -- 100% of all such units must include DTV tuners effective July 1, 2007. *DTV Tuner Order*, ¶ 40.

that rely solely upon over-the-reception of broadcast signals, the adoption of such standards will greatly assist in the transition to a fully-digital landscape, and permit all Americans to experience the tremendous benefits associated with digital television, all the while ensuring that the spectrum is used in the most efficient manner. Moreover, in its simplest sense, it is a consumer protection issue of the highest order.

## **II. DISCUSSION**

In adopting the Notice, the Commission specifically recognized that its current television equipment regulations are focused on the transmission of the television signal, not the reception, i.e., they are transmission-oriented.<sup>11</sup> Since broadcasters do not exercise any control of the reception devices, unlike licensees of wireless communications services, they are entirely dependent upon the technical parameters adopted by individual consumer electronics manufacturers.

While the Commission is certainly correct to note that this flexibility has led to innovation and the abundance of options available to consumers today, from \$10 radios to \$10,000 plasma television sets, one example exists where the dependence upon voluntary standards was responsible for the failure of a promising broadcast standard -- that of AM Stereo radio. In that case, the Commission determined that the transmission industry could propose competing AM Stereo transmission standards and left it to the market place to decide the surviving technology. To date, both the broadcast and receiver manufacturing communities have found this to be unworkable. More importantly, America's consumers have

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<sup>11</sup> Notice, pg. 4 (citing *Task Force Report*, pg. 33).

been bereft of the additional benefits, diversity and choices which successful AM Stereo radio could have represented.

Instead, Pappas believes that the Commission must take the same affirmative steps in connection with ensuring adequate over-the-air reception for DTV viewers as it has encouraged and endorsed with respect to cable viewers. This would complete the standards for the entire transmission chain, end to end, thus avoiding the uncertainty which contributed to the AM Stereo debacle.

The Commission has already recognized in the DTV Tuner Order that it serves the public interest, and the purposes of the effective DTV transition, for the Commission to ensure that the tens of millions of over-the-air television viewers are not harmed, disadvantaged or disenfranchised during the transition to digital television. The Commission must take these steps at the inauguration of over-the-air digital television service to a great portion of the United States, so to ensure a smooth, mutually-beneficial transition into the DTV world. The Consumer Electronics Industry agrees, and has previously urged the Commission to move expeditiously in adopting the Plug and Play MOU.<sup>12</sup>

Pappas agrees with the Commission that "there could be benefit to an approach that would encourage the development of minimum performance guidelines for DTV receivers."<sup>13</sup> In fact, it is critical to adopt performance standards prior to the large-scale introduction of digital television sets, to ensure that the

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<sup>12</sup> *Joint Comments of the Consumer Electronics Association and the Consumer Electronics Retailers Coalition*, CS Docket 97-80, PP Docket 00-67, pg. 4 (stating "[t]he Commission has already ordered that after July 1, 2004, television receivers must contain ATSC tuners on a phased-in basis. It has been widely acknowledged that [the DTV Tuner Order] would be of significantly more tangible benefit to consumers if digital cable tuners could also be built into these [ATSC] tuners on the same time schedule.").

<sup>13</sup> *Notice*, ¶ 36.

American public will purchase fully-functional digital television sets.<sup>14</sup> The failure of DTV to deliver a reliable, easily receivable over-the-air signal would deprive broadcast television of some of its unique advantages – its wireless capability, and its ubiquitous quality. Moreover, it would harm America's consumers by crippling free over-the-air television and marginalize the free over-the-air broadcast system to such a degree that it would become but a vestige of its former glory.

**A. The Commission Should Adopt The Performance Standards for DTV Receivers Developed by ATSC.**

In order for the public to fully appreciate the dynamic service capabilities of digital television, Pappas strongly believes that the Commission must incorporate specific DTV receiver performance standards into its rules. Over one-third of the country does not have cable service, and very few cable systems or DBS operators deliver broadcasters' full digital television signal over their cable or satellite systems. Indeed, it has become clear that most cable and satellite providers intend to strip off all but the main program content of broadcasters' digital signals, making what they claim is more efficient use of their spectrum, even if the result for consumers is that additional services transmitted by DTV broadcasters will be difficult, and even impossible to receive, since the over-the-air signal will not be robust or complete from source to consumer. Since the Commission has yet to complete the digital must-carry proceeding, it is likely, in the near term, that the

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<sup>14</sup> The Mitsubishi Digital Electronics America Vice President recently stated that he believed that no "manufacturer would be crazy enough to build a TV set only for cable, but without the capability of receiving over-the-air or satellite TV." See *Joint Reply Comments of the Consumer Electronics Association and the Consumer Electronics Retailers Coalition*, CS Docket 97-80, PP Docket 00-67, pg. 5, nt. 11.

sole source for America to receive the digital *local* television service is the reception of the over-the-air DTV signal.<sup>15</sup>

Therefore, the Commission must ensure that the digital television sets can adequately receive the digital signals. Despite affirming its authority under the All Channel Receiver Act to adopt standards to ensure the “adequate” reception of digital television signals, the Commission specifically declined to adopt performance standards for said tuners.<sup>16</sup> Instead, the Commission determined that manufacturers should develop voluntary standards for receivers. Now, the Commission has wisely chosen to apply that authority in the context of implementation of the Plug and Play MOU. Pappas respectfully submits that the Commission should similarly apply that authority in the interest of ensuring adequate over-the-air reception.

By many accounts, the consumer electronics industry has been slow to adopt voluntary standards for over-the-air reception. Indeed, the Commission specifically concluded that “insufficient progress [was] being made towards bringing to market the equipment consumers need to receive broadcast signals over the air” at the time it issued the DTV Tuner Order less than one year ago.<sup>17</sup> At the same time, the Consumer Electronics Association opposed the adoption of a requirement for DTV reception capability in new TV receivers<sup>18</sup> and has since sought a reversal of the DTV Tuner order.<sup>19</sup>

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<sup>15</sup> *DTV Tuner Order*, ¶44.

<sup>16</sup> *DTV Tuner Order*, ¶46.

<sup>17</sup> *Id.*, ¶ 33.

<sup>18</sup> *Id.*, ¶ 15.

<sup>19</sup> *See Consumer Electronics Association v. FCC*, Case No. 02-1312 (D.C. Cir., filed October 11, 2002).

Nonetheless, after long periods of delay, representatives of the consumer electronics industry have come together with broadcasters within ATSC and have formed a special committee for the purpose of establishing Recommended Practices for over-the-air reception, and it is expected that ATSC's new committee will adopt its Recommended Practices within a matter of several months.<sup>20</sup> Moreover, comments made by leading consumer electronics industry leaders call into question whether there is truly universal acceptance of the principle that digital television sets must include over-the-air reception ability.<sup>21</sup> Even worse, it is undisputed that there has been great resistance within the consumer electronics industry to the idea that the Recommended Practices be given the same importance and legitimacy by adoption in the Commission's Rules that the consumer electronics industry has accepted with respect to cable interoperability. The CEA's insistence on disparate treatment simply defies logic. Moreover, its unwillingness to entertain the submission to the Commission of ATSC's Recommended Practices calls into question CEA's stated commitment to incorporate over-the-air tuners in all cable compatible television sets.<sup>22</sup> Moreover, from many broadcasters' perspective, the insufficient progress to date on establishing minimum performance standards for over-the-air

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<sup>20</sup> *ATSC To Develop Recommended Practice for DTV Receivers*, Press Release, dated June 30, 2003. ([http://www.atsc.org/news\\_information/press/2003/PR\\_Receiver%20RP.htm](http://www.atsc.org/news_information/press/2003/PR_Receiver%20RP.htm), last visited July 18, 2003). In its July 18, 2003 Comments in this proceeding, ATSC indicated that a "draft" of the recommended practice would be adopted in early 2004.

<sup>21</sup> *See Petition for Partial Reconsideration of Sinclair Broadcast Group, Inc.*, dated November 8, 2002, MM Docket 00-39, pg. 5, nt. 13 (quoting Gary Shapiro and Jenny Miller of the Consumer Electronic Association).

<sup>22</sup> *See Consumer Electronics Retailers Coalition, Ex Parte Notice*, CS Docket 97-80, PP Docket 00-67, dated July 2, 2003 ("Expeditious action by the Commission will allow manufacturers, at slight additional cost, to build cable tuners into devices subject to the Commission's off-air tuner mandate that is effective July 1, 2004. Delay beyond a July/August framework for approval will forego these efficiencies and impose unnecessary costs on most consumers.").



reception in ATSC raises concerns about the ability of the consumer electronics industry to meet the timetable established by the Commission in the DTV Tuner Order for the rollout of over-the-air-ready sets.

Pappas notes that the Commission itself acknowledged that there could be significant “benefit to an approach that would encourage the development of minimum performance guidelines for DTV receivers.”<sup>23</sup> The Commission also posited the potential benefit of a labeling regime based upon compliance with these minimum performance standards. Pappas further notes that under the Plug and Play MOU, DTV television sets will be labeled as “cable ready” or “plug and play.” However, given the uncertainty surrounding the transition to digital television, consumers may assume that these terms also mean that the digital receiver will also receive an adequate digital over-the-air signal. The interests of any one industry notwithstanding, consumers’ interests in true interoperability, regardless of distribution modality, should be of paramount concern to the Commission as it devises the regulatory regime necessary to advance the DTV transition.

Only the most technologically savvy consumer will be able to determine whether the labeled television sets will meet their needs. To avoid the confusion that is likely to result from a labeling regime limited to “cable ready” or “plug and play” indications, Pappas proposes a unitary labeling regime for all DTV receivers that would indicate that they are “cable ready” and “over-the-air ready.” While the proposal is profoundly simple, it is nonetheless essential to achievement of the Commission’s aims.

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<sup>23</sup> Notice, ¶ 36.

Exacerbating this concern about consumer confusion is that, based upon surveys by Pappas engineers in many of its broadcast markets from Los Angeles to Opelika, the sales staffs at most consumer electronics stores, including the best known national chains, are not well-versed with the distinctions among the DTV tuners and monitors; in fact, very little receiver tuner product, if any, is available in those outlets. The vast majority of devices categorized by these outlets as digital TVs are actually monitors and do not contain DTV receivers. Often, when asked about reception of DTV signals, store employees direct customers to DBS systems. They often simply do not understand the distinction and have no DTV set top receivers in stock and, if they do, the prices are in the range of \$400 and up.

The Commission's repeated unwillingness to mandate specific DTV receiver standards is understandable in the context of its general reluctance to engage in standards-setting activity. However, the Commission should adopt the Recommended Practices developed by ATSC on a consensual basis just as it is in the process of adopting the voluntarily-derived technical parameters for cable interoperability. The Commission must actively encourage and, if necessary, press the members of ATSC to move forward in good faith (as it did with cable and the consumer electronics industry), and to develop Recommended Practices that are stringent enough to ensure a *consistent, reliable, and understandable* level of performance for the consumer.<sup>24</sup> As discussed below, there are four key elements

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<sup>24</sup> This position is also supported by the Consumer Electronics Association and the Consumer Electronics Retailers Coalition. See *Joint Consumer Industry Comments*, pg. 16 ("Without FCC implementation...the Commission would be back to where [it] started: the parties unable to agree on a satisfactory way forward, the Commission in search of a solution, and the public deprived of the benefits of the competition. The biggest loser would be the public.").

that ATSC's recommended standards must include to ensure these goals can be met.

**B. DTV Receiver Performance Standards Should Focus on Selectivity, Sensitivity, Dynamic Range, and Multipath Tolerance.**

In adopting the DTV Table of Allotments, the Commission made certain assumptions, including specific receiver performance criteria required to successfully enable this new service. The DTV Table of Allotments, for the first time, had mandated the use of Taboo channel assignments that were previously disallowed due to the known potential for destructive interference.

To aid in overcoming these known reception impairments, made more critical by this unprecedented packing of television channels, the Commission specified receiver performance criteria in three areas: sensitivity, selectivity and dynamic range.

During early deployment testing of the DTV system, it was discovered that multipath performance was a fourth critical receiver design element. Multipath interference is analogous to ghosting in the current analog service and is generally caused by signals reflected from objects, such as buildings or terrain, in or near the transmission path and which arrive at the receive antenna at slightly different times relative to the main signal. While moderate amounts of multipath interference are an annoyance in the analog service, they were found to be a fatal impairment to reception in the DTV service unless receivers were designed with adequate correction. Receiver design requirements to correct for this particular impairment are generally understood and some reasonable solutions are available to manufacturers. However, multipath interference is generally the most difficult of

the four identified impairments to correct in digital receivers and work on design improvements continues.

The Commission declined to mandate known critical receiver performance criteria, assuming that receiver manufacturers would voluntarily meet these minimum performance requirements, just as they had done when designing receivers for the analog television service. However, at this time, there is a relative dearth of DTV receivers available in retail outlets, and those DTV receivers that are on the market do not meet acceptable standards to assure reception from typical simple antennae used for analog television reception.

As noted above, in response to the Commission's adoption of the Notice, the ATSC announced that it would develop a "recommended practice" for DTV receiver manufacturers that would serve as voluntary performance guidelines. As a member of the ATSC, Pappas is actively participating in the process, and is attempting to provide a broadcaster's perspective to the developers of the voluntary standards.

ATSC's minimum standards must address receiver sensitivity, selectivity and dynamic range and dynamic multipath performance. There is little confidence among broadcasters that adequately performing DTV receivers will be forthcoming without the Commission's leadership on this serious issue. By adopting the ATSC consensual standards, and by insuring that consumers are no longer bereft of the most basic labeling information so that they can make informed decisions, this Commission will have truly advanced the DTV transition.

First, the Commission should ensure that the standards adopted by ATSC meet a minimum level requirement for sensitivity, e.g., the receiver's ability to receive signals of low strength and is expressed using Noise Figure criteria. In its

rules, the FCC recommends noise figures of 10db for VHF and 7db for UHF signals. This is a critical, vital, and fundamental element in the Commission's planning for assurance of the replication of the current analog television service. Pappas recommends using either the current FCC noise figure criteria or that recommended by the ATSC when adopting the minimum sensitivity performance standards.

Second, the performance standards should ensure that receivers intended for DTV over-the-air service meet a minimum level requirement for selectivity, e.g., the receiver's ability to isolate and acquire desired signal from all undesired signal that may be present on other channels. Sufficient selectivity is also important to avoid interference from other future services which might be licensed to operate near the DTV frequencies. Pappas recommends using either the current FCC criteria, or that recommended by the ATSC for this selectivity performance standard.

Third, these performance standards must also ensure that receivers intended for over-the-air DTV service meet a minimum level requirement for dynamic range, e.g., the highest and lowest signal strength levels that it can receive. This factor is critical, since the DTV spectrum suffers from adjacency of numerous high and low powered stations. Pappas recommends using either the current FCC definitions or those recommended by the ATSC for dynamic range used in adopting the DTV Table of Allotments for the dynamic range performance standard.

Fourth and finally, the Commission's performance standards must ensure that receivers intended for over-the-air DTV service meet an adequate minimum performance level for canceling multipath impairments and the ATSC's

recommendation should become the Commission's multipath performance standard.

While ATSC is developing these performance standards, the Commission should solicit comment on these standards to ensure that an "adequate DTV signal" will be received by the public. If the ATSC standards meet the requirements of ACRA, the Commission should incorporate the performance standards into its own rules. The Commission's adoption of the ATSC performance standards is symmetrical to the approach taken in the "plug and play" proceeding, whereby the two industries, cable and consumer electronics, have developed performance standards, the Commission is now seeking comment on those standards, and subsequently, the standards will become part of the Commission's rules on a going-forward basis. The same process can and should be adopted for DTV receiver performance standards though the ATSC process for the same reasons discussed herein.

The Commission has long encouraged regulatory parity among similar technologies and services. For example, the Commission has adopted uniform inside wiring rules to apply to all MVPD service providers, regardless of whether the signal is delivered via cable, SMATV, or other non-cable providers.<sup>25</sup> Additionally, when the Commission transferred seven bands of spectrum from government use, the Commission attempted to "establish consistency and promote regulatory parity with respect to the policies governing the wireless services."<sup>26</sup>

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<sup>25</sup> *Telecommunications Services Inside Wiring*, 18 FCC Rcd at ¶80.

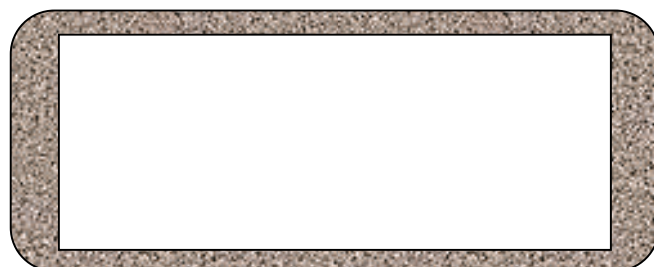
<sup>26</sup> *Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands*, Report and Order, 17 FCC Rcd 9980, ¶69 (2002).

In the case of the procedures for developing performance standards for DTV receivers, it should not matter whether the signal ultimately is being delivered to the receiver via cable or over-the-air. Instead, the same standards-adoption process for televisions sets receiving digital programming over cable must be used to adopt the standards for television sets receiving digital programming over-the-air. Since the consumer electronics manufacturers have been working with both the cable operators with respect to plug-and-play, and the broadcasters with respect to the ATSC recommended practices, the Commission should not distinguish between the two issues, and instead incorporate both sets of standards into its rules.

**C. The Commission Should Adopt Strict Labeling Guidelines.**

Once the new receiver standards have been adopted on a consensual basis among all the members of ATSC, and those standards have been subsequently incorporated into the Commission's rules, the Commission should then impose a single labeling regime for digital television receivers, regardless of the method of signal delivery.

The adoption of the labeling requirements for over-the-air and cable-ready DTV receivers would provide at least a minimal level of comfort for the consumer that the DTV receiver would meet the Commission's rules for the reception of an "adequate" signal. Given the need for symmetry among the plug-and-play and over-the-air DTV tuner labeling requirements thus far, the Commission should consider adopting one uniform label:



The label would provide information with respect to the two factors that are most important to consumers: (1) can the television set get adequate DTV signals over the air through its tuner; and (2) can the television set carry the digital signal of television stations transmitted by cable. The label would represent that the television set met the standards established by ATSC with respect the reception of an adequate signal, and also that the television set met the CEA/NCTA plug-and-play standards.

The adoption of a single labeling regime for all DTV receivers would fit squarely within the Commission's past practices, and would serve as an erstwhile seal of approval that the consumer could count on in determining that a particular DTV television set would receive an adequate over-the-air signal. America's consumers deserve nothing less.

### **III. CONCLUSION**

The Commission must take all necessary steps to expedite the transition to digital television for **all** consumers. The Commission's adoption of receiver performance standards developed by the consumer electronics manufacturers and the cable operators on one hand, and within ATSC on the other, would ensure that consumers, broadcasters, cable operators and consumer electronics manufacturers would all benefit, and would restore regulatory certainty; however, the greatest beneficiary should be America's viewing public. It is these consumers who would then readily adopt digital television to the ultimate benefit of the viewing public,



and who would do so without confusion and at the lowest economic cost under the most competitive conditions.

In addition, the Commission's adoption of the consumer electronics manufacturers' and broadcasters' negotiated standards for both plug and play and over the air receivers will provide regulatory symmetry among the similar technologies. Moreover, the creation of a single labeling regime for digital television receivers will benefit the consumer greatly, who would be in the position to quickly verify whether a particular DTV television set met the technical requirements for its intended uses, and the manufacturers would benefit from being able to clearly describe their product to the consumer with little chance for ill will or confusion.

Finally, one of the last obstacles to the transition to a DTV world would be eliminated and the Commission would thereby assure that tens of millions of over-the-air viewers are neither disadvantaged nor disenfranchised.

Lastly, the adoption of such standards by the Commission would lay the groundwork for the potential future sharing of the broadcast spectrum. Without such minimum performance standards, any notion of introducing unlicensed devices into the broadcast spectrum is effectively foreclosed. While Pappas has expressed significant doubts about the efficacy of such spectrum sharing at this time, Pappas nonetheless believes, in the first instance, that the Commission should take all steps necessary to protect against potential interference to over-the-air DTV reception. In so doing, the Commission would also lay the groundwork for future consideration of more efficient use of the broadcast spectrum.

Respectfully submitted,

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